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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/825,614	04/15/2004	James P. Moffatt	6-2	7877

7590 09/19/2005

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EXAMINER

CHOE, HENRY

ART UNIT PAPER NUMBER

2817

DATE MAILED: 09/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

APK

Office Action Summary	Application No. 10/825,614	Applicant(s) MOFFATT ET AL.	
	Examiner Henry K. Choe	Art Unit 2817	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 June 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>4/15/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1,6, 7, 9-11, 13-16, 18, 20, 21 and 23-25 are rejected under 35 U.S.C. 102(b) as being anticipated by Wright et al (Figs. 1-8, 14-21 and 25-50).

Regarding claims 1, 15, 16, 18, and 25, Wright et al (Figs. 1-8, 14-21 and 25-50) discloses an amplifier circuit comprising a predistorter (52) which processes an input signal $[V_m(t)]$ based on one or more static coefficients (data in 70) representative of a non-linear distortion characteristic of an amplifier (60) and a non-linear gain parameter (data in 70) which reduces an error metric $[X_+(t)]$ between the input signal $[V_m(t)]$ and a feedback signal $[V_f(t)]$ following the amplifier (60), and an adaptive circuit (70) which adjusts the non-linear gain parameter based on the error metric $[X_+(t)]$.

Regarding claims 6, 7 and 20, Wright et al (Figs. 1-8, 14-21 and 25-50) further comprising the method step of processing the input signal ($[V_m(t)]$) based on a feedback gain parameter {gain parameter in the $[V_f(t)]$ } which compensates for a small signal gain of a feedback loop (62, 66, 68, 70) that generates the feedback signal $[V_f(t)]$.

Regarding claim 9, the small signal gain $[x_+(t)]$ is a difference between the input signal $[V_m(t)]$ and the feedback signal ($[V_f(t)]$).

Regarding claim 10, Wright et al (Figs. 1-8, 14-21 and 25-50) further comprising the step of applying the predistorted signal $[V_d(t)]$ to the amplifier (60).

Regarding claims 11 and 21, Wright et al (Figs. 1-8, 14-21 and 25-50) further comprising the step of multiplying (left most x in FIG. 4A) the input signal $[V_m(t)]$ by the non-linear gain parameter (tap 0 coefficient).

Regarding claims 13 and 14, the non-linear distortion characteristic includes an AM/AM characteristic and AM/PM characteristic (see abstract).

Regarding claim 23, the static coefficients are implemented using a look-up-table (52H in FIG. 3).

Regarding claim 24, the static coefficients are implemented using one or more multipliers (Xs in FIG. 4A).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2-5, 8, 12, 17, 19 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wright et al (Figs. 1-8, 14-21 and 25-50).

Wright et al (Figs. 1-8, 14-21 and 25-50) discloses all the limitations in the claims except for that the non-linear gain parameter is adapted when the input voltage is above a threshold input voltage, the threshold input voltage identifies a compression zone, the

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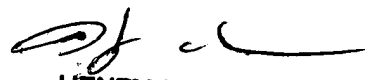
nonlinear gain parameter adapts an amount of nonlinearity introduced by the predistorting step, the error metric comprises a squared difference between the input signal and the feedback signal following the amplifier, the small signal gain is approximately unity, and dividing the input signal by the non-linear gain parameter. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have implemented the specific range of the signals since they are based on the routine experimentation to obtain the optimum operating parameters.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Patent numbers (6,359,508; 6,504,425) are the predistortion circuits.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Henry Choe whose telephone number is (571) 272-1760.


HENRY CHOE
PRIMARY EXAMINER

#1060